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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,889	02/09/2004	Thadeus Schauer	226465	1284

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LEYDIG VOIT & MAYER, LTD
TWO PRUDENTIAL PLAZA, SUITE 4900
180 NORTH STETSON AVENUE
CHICAGO, IL 60601-6731

EXAMINER	
TUROCY, DAVID P	
ART UNIT	**PAPER NUMBER**
1762	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/775,889	SCHAUER ET AL.	
	Examiner	Art Unit	
	David Turocy	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *28 February 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/31/07 has been entered.

Response to Amendment

2. Applicant's amendments, filed 1/31/2007, have been fully considered and reviewed by the examiner. The examiner notes the amendment to claims. Claims 1-16 remain pending in the instant application.

Response to Arguments

3. Applicant's arguments filed 1/31/2007 have been fully considered but they are not persuasive.

The examiner notes the applicant's lengthy discussion regarding adsorption and depositing, where the applicant argues that adsorption involves a solute accumulates on the surface by consequences of a surface energy and deposit is synonymous with precipitate. The examiner disagree that adsorption is not considered a depositing. As supplied by the applicant, deposit has varying definitions in the verb form (as required by the claim), among them "to be placed, inserted, precipitated..." (See Exhibit A) or "to

put down ..." (Exhibit B). Therefore, while the applicants are correct in determining the precipitation is may be a type of depositing, depositing is clearly not limited to such a narrow interpretation. As seen above, the definition is inclusive of placing, or putting down. As discussed above, the applicants contend that adsorption is the putting down of or the placing of materials on the surface of a substrate by surface energy. Therefore, contrary to the applicant's contention, giving depositing its broadest reasonable interpretation consistent with the specification, such a term encompasses adsorption. The specification fails to specifically define the term depositing and during patent examination, the pending claims must be "given the broadest reasonable interpretation consistent with the specification" by giving words their plain meaning unless the specification provides a clear definition. See *In re Prater* 415 F.2d 1393 1404-05 162 USPQ 541 and *In re Zletz* 893 F.2d 319, 321, 13 USPQ2d 1320.

Even if the applicants narrow interpretation are applied, i.e. depositing = precipitation, the examiner supplies Noro (cited on the applicants IDS dated 6/21/2004) in the rejection below, which discloses precipitation during solvolysis.

Additionally, the examiner notes the applicant argues that the claims as written fail to even encompass that which the applicants are arguing, where "less soluble" does not necessarily translate into precipitation, but only that the converted polymer may be only a small fraction less soluble, but still in fact soluble.

The applicants argue against the Bugnon reference, stating that the reference discloses adsorption and does not precipitate on the substrate, and provides a lengthy discussion illustrating the differences between deposition and absorption, which have

been addressed above. However, it is unclear from the claims how the applicant is achieving this claimed "precipitation" and the prior art of Bugnon only discloses adsorption. Bugnon process describes:

(1) bringing a solution of a PVAc in an organic solvent

(2) subjecting the PVAC to a solvolysis reaction to form PVOH

(3) coating the surface of a substrate.

Each of the preceding steps are required by the claims as written. Specifically, the specification on page 3 and Example 1 discloses the polymer derivative is preferably PVAc, the preferred deposited polymer includes PVOH and the solvent is usually an organic solvent. Therefore, while applicants content that Bugnon only discloses adsorption, Bugnon discloses the same process steps as claimed by the applicant using the same or substantially similar materials. Therefore, it is unclear, from the claims as written how the applicant is achieving this "precipitation" and Bugnon fails to achieve the same. Since the prior art and the present claims, reflected by claim 1, teach all the same process steps using the same materials as defined by the applicants specification, the results obtained by applicants process must necessarily be the same as those obtained by the prior art. Therefore by performing the 3-step process above, it must necessarily result in a less soluble form of the polymer. Either 1) the applicant and the prior art have different definitions for various, or 2) the applicant is using other process steps or parameters or specific combinations of materials that are not shown in the claims. At the very least, it is the examiners position that the process of Bugnon

must necessarily result in some degree of precipitation due to using the same process steps as described above.

The applicant has argued against the Bugnon reference stating the reference fails to discloses a controlled coating, whereas the adsoroption layers only function as long as there are available adsoptive sites. Such an argument is not commensurate in scope with the claims because the claims require coating the surface and are not limited to multiple coating layers or controlling the thickness, etc. as argued by the applicant.

Double Patenting

4. Applicant is advised that should claim 11 be found allowable, claim 13 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3-5, 7-8, 10, 12, 14, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0 528 602 by Bugnon et al., hereafter Bugnon.

Claim 1 and 12: Bugnon teaches coating a particulate pigment with a polymer (abstract). Bugnon discloses coating the pigment with a polyvinyl alcohol by forming the polyvinyl alcohol by a solvolysis reaction of a vinyl acetate polymer and pigment dispersion (Page 2, lines 35-38). Bugnon discloses dispersing a pigment in a solution of a polymer to provide coating onto the pigment (Page 2, line 56-Page 3, line 8).

Bugnon process describes:

(1) bringing a solution of a PVAc in an organic solvent

(2) subjecting the PVAC to a solvolysis reaction to form PVOH

(3) coating the surface of a substrate.

Each of the preceding steps are required by the claims as written. Specifically, the specification on page 3 and Example 1 discloses the polymer derivative is preferably PVAc, the preferred deposited polymer includes PVOH and the solvent is usually an organic solvent. Therefore, while applicants content that Bugnon only discloses adsorption, Bugnon discloses the same process steps as claimed by the applicant using the same or substantially similar materials. Therefore, it is unclear, from the claims as written how the applicant is achieving this "precipitation" and Bugnon fails to achieve the same. Since the prior art and the present claims, reflected by claim 1, teach all the same process steps using the same materials as defined by the applicants specification and examples, the results obtained by applicants process must necessarily be the same as those obtained by the prior art. Therefore by performing the 3-step

process above, it must necessarily result in a less soluble form of the polymer. Either 1) the applicant and the prior art have different definitions for various, or 2) the applicant is using other process steps or parameters or specific combinations of materials that are not shown in the claims

Claim 3: Bugnon discloses a polyvinyl acetate, which includes a unsaturated group on a backbone chain.

Claims 4 and 5: Bugnon discloses producing active groups and also discloses the step of crosslinking the polymer after coating the pigment (Page 4-Page 5).

Claim 7: Bugnon discloses washing the coated pigment (Page 4, line 23).

Claims 8, 10, and 16: Bugnon discloses a pigment substrate and a polymer with a molar mass in the range as claimed (abstract, Page 2, lines 35-38).

Claim 14: Bugnon discloses using a metallic pigment (Page 4, line 37).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1, 3-5, 7-8, 10, 12, 14, and 16 are rejected under 35 U.S.C. 102(a) as being unpatentable over EP 0 528 602 by Bugnon et al., hereafter Bugnon in view of "Hydrolysis of Polyvinyl Acetate to Polyvinyl Alcohol" by Noro, hereafter Noro.

Claim 1 and 12: Bugnon teaches coating a particulate pigment with a polymer (abstract). Bugnon discloses coating the pigment with a polyvinyl alcohol by forming the polyvinyl alcohol by a solvolysis reaction of a vinyl acetate polymer and pigment dispersion (Page 2, lines 35-38). Bugnon discloses dispersing a pigment in a solution of a polymer to provide coating onto the pigment (Page 2, line 56-Page 3, line 8). Bugnon discloses precipitating the PVOH out of the solution of PVAc and an organic solvent to form the coating on the pigment, but fails to disclose precipitating the PVOH as a result of the solvolysis reaction.

However, Noro teaching of varying methods to form PVOH from PVAC discloses a known and suitable method for precipitating PVOH out of solution includes using solvolysis (94, lines 1-10). Noro discloses providing a PVAC in organic solvent, similar to that suggested by Bugnon, and the solvolysis reaction proceeds rapidly with

"precipitation of PVOH without stirring." Therefore, it would have been obvious to one skilled in the art at the time of the invention to have modified Bugnon to have provided the solvolysis reaction as taught by Noro with a reasonable expectation of successfully providing a precipitate to coat pigments. The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.,* 325 U.S. 327, 65 USPQ 297 (1945).

Claim 3: Bugnon discloses a polyvinyl acetate, which includes a unsaturated group on a backbone chain.

Claims 4 and 5: Bugnon discloses producing active groups and also discloses the step of crosslinking the polymer after coating the pigment (Page 4-Page 5).

Claim 7: Bugnon discloses washing the coated pigment (Page 4, line 23).

Claims 8, 10, and 16: Bugnon discloses a pigment substrate and a polymer with a molar mass in the range as claimed (abstract, Page 2, lines 35-38).

Claim 14: Bugnon discloses using a metallic pigment (Page 4, line 37).

1. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bugnon as applied to claim 1 above and further in view of Marie publication, hereafter Marie.

Bugnon teaches all the limitations of these claims as discussed in the 35 USC 102(b) rejection above, however, the reference fails to disclose partial solvolysis.

However, Marie, teaches poly vinyl alcohol is formed by solvolysis of poly vinyl acetate and discloses controlling the hydrolysis depending on the desired product (Introduction). Marie discloses using partial solvolysis of a poly vinyl acetate to provide poly(vinyl alcohol) (introduction).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Bugnon to use partial solvolysis as suggested by Marie to provide a desirable polyvinyl alcohol because Marie discloses it is advantageous to control solvolysis, including performing only partial solvolysis, when forming poly vinyl alcohol from poly vinyl acetate

10. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bugnon in view of Noro as applied to claim 1 above and further in view of Marie publication, hereafter Marie.

Bugnon in view of Noro teaches all the limitations of these claims as discussed in the 35 USC 102(b) rejection above, however, the reference fails to disclose partial solvolysis.

However, Marie, teaches poly vinyl alcohol is formed by solvolysis of poly vinyl acetate and discloses controlling the hydrolysis depending on the desired product (Introduction). Marie discloses using partial solvolysis of a poly vinyl acetate to provide poly(vinyl alcohol) (introduction).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Bugnon in view of Noro to use partial solvolysis as

suggested by Marie to provide a desirable polyvinyl alcohol because Marie discloses it is advantageous to control solvolysis, including performing only partial solvolysis, when forming poly vinyl alcohol from poly vinyl acetate

2. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bugnon in view of "Addition Polymerization". Encyclopedia of Polymer Science and Engineering. Volume 1. New York. Pg 470-471.

Bugnon teaches all the limitations of these claims as discussed above in the 35 USC 102(b) rejection except, however, Bugnon fails to teach of a crosslinking reaction is a free-radical, addition, or condensation reaction.

However, "Addition Polymerization" teaches that vinyls are known in the art to crosslink using addition polymerization (Paragraph 3).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Bugnon to use the addition crosslinking reaction as suggested by "Addition Polymerization" to provide a desirable crosslinking because Bugnon teaches of using a crosslinking reaction to bond a vinyl polymer to the substrate surface and "Addition Polymerization" teaches that vinyl polymers are known in the art to crosslink using a addition reaction.

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bugnon in view of Noro in view of "Addition Polymerization". Encyclopedia of Polymer Science and Engineering. Volume 1. New York. Pg 470-471.

Bugnon in view of Noro teaches all the limitations of these claims as discussed above in the 35 USC 102(b) rejection except, however, Bugnon in view of Noro fails to teach of a crosslinking reaction is a free-radical, addition, or condensation reaction.

However, "Addition Polymerization" teaches that vinyls are known in the art to crosslink using addition polymerization (Paragraph 3).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Bugnon in view of Noro to use the addition crosslinking reaction as suggested by "Addition Polymerization" to provide a desirable crosslinking because Bugnon in view of Noro teaches of using a crosslinking reaction to bond a vinyl polymer to the substrate surface and "Addition Polymerization" teaches that vinyl polymers are known in the art to crosslink using a addition reaction.

4. Claims 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bugnon in view of US Patent 3393162 by Cox et al., hereafter Cox.

Bugnon discloses coating a polymer coating pigment and discloses various types of pigments, including metallic complexes and dyestuff pigments (Page 4, line 37), but fails to disclose coating a flat substrate or an aluminum substrate.

However, Cox, teaching of a method of providing polymer coatings on pigments, discloses aluminum flakes, which are inherently flat in structure, benefit from a polymer coating and also discloses aluminum flakes are known substitutes of dye pigments (Example 8, column 1, lines 30-38). Substitution of equivalents requires no express

motivation. *In re Fount*, 213 USPQ 532 (CCPA 1982); *In re Siebentritt* 152, USPQ (CCPA 1967).

5. Claims 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bugnon in view of Noro in view of US Patent 3393162 by Cox et al., hereafter Cox.

Bugnon in view of Noro discloses coating a polymer coating pigment and discloses various types of pigments, including metallic complexes and dyestuff pigments (Page 4, line 37), but fails to disclose coating a flat substrate or an aluminum substrate.

However, Cox, teaching of a method of providing polymer coatings on pigments, discloses aluminum flakes, which are inherently flat in structure, benefit from a polymer coating and also discloses aluminum flakes are known substitutes of dye pigments (Example 8, column 1, lines 30-38). Substitution of equivalents requires no express motivation. *In re Fount*, 213 USPQ 532 (CCPA 1982); *In re Siebentritt* 152, USPQ (CCPA 1967).

6. Claims 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bugnon in view of US Patent 3884871 by Herman et al ("Herman").

Bugnon teaches all the limitations of these claims as discussed above in the 35 USC 102(b) rejection, however, Bugnon fails to explicitly teach of a forming a nano layer on the surface of the substrate.

Herman, teaching of a process of coating pigment particles with a polymer, discloses that the particles measured were 0.25 – 0.26 micron in diameter both before and after coating (Example 1, Column 6, lines 32-36). It is the examiners position that a coating thickness that does not change the diameter in the micron scale inherently provides a coating thickness in the nano scale.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Bugnon to use the nanolayer suggested by Herman to provide a desirable pigment coating because Bugnon teaches using a polymer solution to coat a pigment particulate and Herman teaches that it is desirable to coat a pigment particle with a nanolayer from a polymer solution.

7. Claims 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bugnon in view of Noro in view of US Patent 3884871 by Herman et al ("Herman").

Bugnon in view of Noro teaches all the limitations of these claims as discussed above in the 35 USC 102(b) rejection, however, Bugnon in view of Noro fails to explicitly teach of a forming a nano layer on the surface of the substrate.

Herman, teaching of a process of coating pigment particles with a polymer, discloses that the particles measured were 0.25 – 0.26 micron in diameter both before and after coating (Example 1, Column 6, lines 32-36). It is the examiners position that a coating thickness that does not change the diameter in the micron scale inherently provides a coating thickness in the nano scale.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Bugnon in view of Noro to use the nanolayer suggested by Herman to provide a desirable pigment coating because Bugnon in view of Noro teaches using a polymer solution to coat a pigment particulate and Herman teaches that it is desirable to coat a pigment particle with a nanolayer from a polymer solution.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Derwent Abstract NL 7714035A discloses forming PVOH from a PVAC in 1-4 C alcohols and effectively controlling the solvolysis to proceed to any degree desired.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Turocy whose telephone number is (571) 272-2940. The examiner can normally be reached on Monday-Friday 8:30-6:00, No 2nd Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Turocy
AU 1762

TIMOTHY MEEKS
SUPERVISORY PATENT EXAMINER